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Tank Destroyer School

PIONEER DEPARTMENT

Camp Hood, Texas

BOOBY TRAPS
FOR
TRAINING

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BOOBY TRAPS FOR TRAINING

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BOOBY TRAPS FOR TRAINING

The primary distinction between antipersonnel mines and booby traps lies not in their make-up, but in the mission they are designed to carry out.

Antipersonnel mines always serve definite tactical missions, often in the deliberate defense of a permanent or semi-permanent position. They will be found in antitank mine fields and are laid there not only to warn the defending troops that someone is in the antitank mine field, but also to take casualties in their removal parties. Antipersonnel mines will also be found sown in barbed wire entanglements or in any other obstacle, artificial or natural, for the same purposes. They will be used as warning devices on favorable approaches to a defensive position, at the same time causing casualties and disorganizing the enemy's advance. Furthermore, antipersonnel mines will be found in favorable assembly or rallying positions, and will contribute to the disorganization of the attacking forces. In all these instances, note that they serve definite tactical missions.

Booby traps, rather than serving as an integral part of a defensive plan, are placed to harass troops in areas which have already been given up. Instead of preventing the enemy from entering certain areas, as antipersonnel mines are often delegated to do, booby traps are designed to destroy morale. Booby traps are utilized to make the soldier live in dread of what is to happen next. to make him live in fear of the next moment, to put his existence in a constant state of uncertainty.

One can hardly name a place that could not conceal a booby trap. And almost anything conceivable could be the bait for one of these devices. No trick or treachery is declared out of bounds. No weapon can match the booby trap for versatility of use and variety of preparation.

Its effect on morale can be tremendous. Comparatively speaking, casualties from booby traps are not very high. It is the <u>fear of the unknown</u> which takes its toll on the soldier's peace of mind. The uncanny apprehension that anything he may touch or that the next step he takes may send him skyrocketing to his death is definitely a retarding factor on the state of his morale.

If, however, the individual soldier receives a good grounding in booby trap technique; if he has definite knowledge concerning the principles involved in their employment; and if he is given thorough training in the application of this technique and these principles, he will have reduced this fear of the unknown and the uncertain to a minimum. Enlighten the American soldier in training, and you will imbue in him an impregnable confidence in his ability to cope with the wiles and treacheries of his enemies.

For these reasons, most of the material in this manuscript is devoted to booby traps for training purposes. A few paragraphs explain how the principles employed in training, with some slight variations, may be applied in combat.

Booby traps, in almost all instances, are made up of three principal parts: (1) a tripping mechanism, which may be anything from a piece of cheese to the more common trip wire; (2) a firing device, which may be fired electrically or non-electrically, instantaneously or delayed, and with standard or expedient equipment; (3) the explosive charge, which may be anything from a half-pound of TNT to a two-ton block-buster bomb. In this outline we shall attempt to show you how you can make up your explosive charge in training, with maximum effect and minimum danger to the troops being trained.

TRIPPING MECHANISMS

Some act or movement on the part of the victim is necessary to explode a booby trap. The soldier who leaves the booby trap behind must leave some means by which his enemies will inadvertently seal their own fate (see fig. 1).

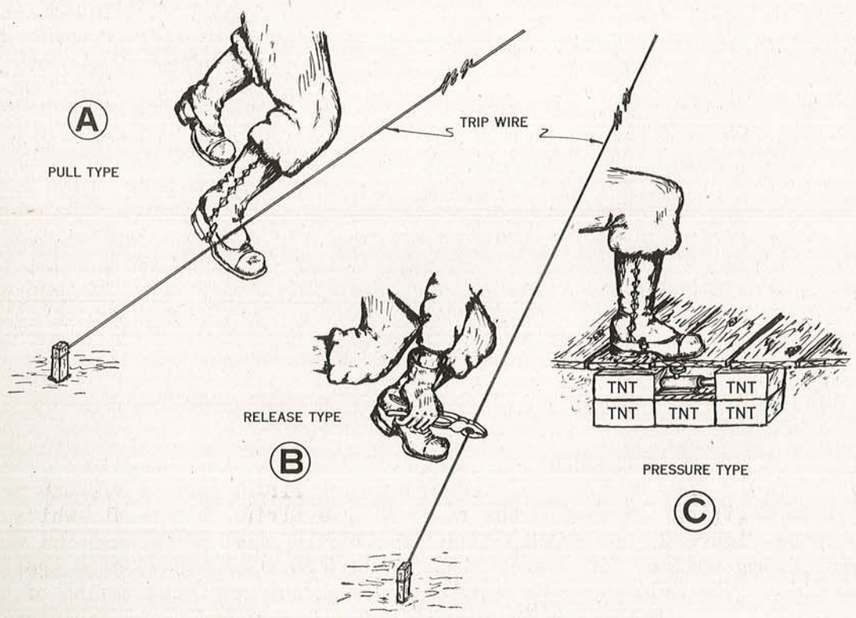


FIG. 1 TRIPPING MECHANISMS

The most common type of tripping mechanism is the trip wire. This is nothing more than a strand of light gauge wire strung a few inches above the ground level. It is laid out in such a manner that someone tripping over the wire enacts a pull on a firing device to which it is attached. The same thing may be accomplished by tying a string or wire to a piece of equipment, such as a rifle, or to some food or anything which may be of interest to the soldier (see fig. 23). This piece of string runs to the firing device and the trap is fired when the victim attempts to move the article that has been used as the bait for the trap. By the same token, the desired pull may be brought to bear on the firing device by tying the string or wire to a door, window, abandoned vehicle, pile of rubbish, chain on a toilet, cover of a piano, crooked picture on a wall, or a multitude of other things which would give the necessary effect when the victim does what is expected of him.

Another type of tripping mechanism is the pressure type (see fig. 1C). In this case, the addition of weight or pressure is necessary to spring the trap. Any weight, from a few ounces to several hundred pounds, may produce the pressure required. The pressure type of tripping mechanism is utilized in one of the standard government issue firing devices and many expedient types, both electric and non-electric, which will be discussed later under the heading of firing devices.

The third type of tripping mechanism is the release type. An excellent example of this type is the Release Type Firing Device M1 (see fig. 2C). This type of firing device operates by means of release of pressure applied at the time the trap is set. For instance, a canteen is placed on this firing device and then the safety pin is removed. When someone picks up the canteen, the trap will be sprung. It takes the release of some pressure or tension, originally applied by the person who set the trap, to spring it.

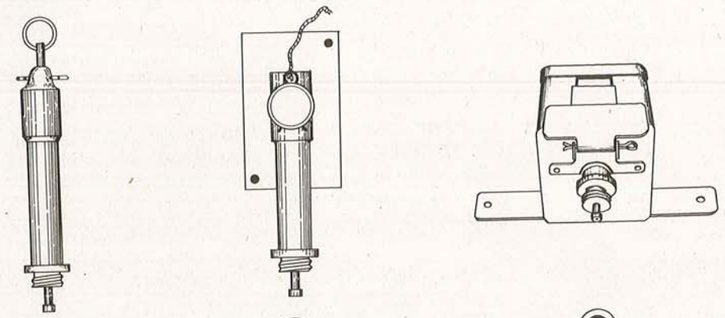
FIRING DEVICES

Some means whereby the victim may seal his own destruction by some act or movement on his part has previously been outlined above. The trap must be equipped with a FIRING DEVICE which will work hand in hand with the tripping mechanism. These firing devices may operate electrically, non-electrically, or chemically.

NON-ELECTRIC FIRING DEVICES

Five types of non-electric firing devices have been adopted for issue by the U. S. Army. They are: the pull type firing device M1, the pressure type firing device M1, the release type firing device M1, which are shown in figure 2; the combination type firing device M1, and the delay type firing device M1. The combination type M1 operates by both pressure and pull. The delay type M1 operates through the corrosive action of acid on a metal. The speed of operation of this firing device is dependent to a large extent on the temperature, and the device, once armed, cannot be neutralized. These facts eliminate the delay type for use in training.

STANDARD FIRING DEVICES



(A) PULL TYPE FIRING DEVICE, M1

(B) PRESSURE TYPE FIRING DEVICE, M1

(C) RELEASE TYPE FIRING DEVICE, M1

FIG. 2

The other four firing devices operate on primarily the same principle. When the necessary pull has been exerted, or when the necessary pressure has been applied, or when some weight or pressure has been released, a firing pin, which has been held in a cocked position against the pressure from a spring, falls on a percussion cap (No. 3 primer, similar to the cap found in the base of a shotgun shell). This percussion cap explodes and spits a flame out of the end of a base, which has previously been screwed into the device.

In most cases, the noise from this small percussion cap will be a sufficient indication that the trap has been sprung. If a louder report is wanted, the open end of a non-electric blasting cap can be crimped around the base of the device. If a still louder report is wanted and the personnel who may trip the device will be at a safe distance, a small charge of dynamite or nitrostarch may be added. Of course, when the firing pin in the device hits the percussion cap which explodes the blasting cap by shooting a flame into its open end, the blasting cap, in turn, will detonate any explosive in place around the cap.

A principal function of one of these devices (the release type, fig. 3) is the activation of antitank mines. An activated mine is a standard antitank mine laid in conjunction with a firing device. The firing device will explode the mine when it is moved. For training purposes, the end of the base of the release type firing device is placed directly into a small firecracker. The jet of flame created by the explosion of the percussion cap will explode the firecracker.

In training, any type of government issue firing device may be used to explode firecrackers. When available, they are somewhat safer than the Army blasting cap because of the metal casing of the blasting cap. However, the danger from the flying fragments of the cap may be reduced somewhat by taping the cap securely.

For further information on the subject of government issue firing devices, see the Engineer School Study No. 4, and WD TC 50.

The standard fuse lighter, found in adequate quantities in U. S. Army demolition sets, makes an acceptable non-electric firing device for booby traps. These may be utilized in many ways (see fig. 4).

They may be used "as is," or they may be altered somewhat (see fig. 5). To use this type, a length of safety fuse is pushed into the fuse lighter, and the fuse is cut so there is enough left to permit its being crimped to a non-electric cap at the end (about 3/4") (see fig. 4A).

If a trip wire is attached to the handle and the fuse lighter anchored in place, there will be an interval of approximately 15 seconds between the time the victim trips over the wire and the time the cap will explode. Many times in training, such a lapse or an even longer one would be desirable. In most instances, however, it is desirable to cut down this interval.

One of the government issue fuse lighters can be used to make an

ACTIVATED MINE

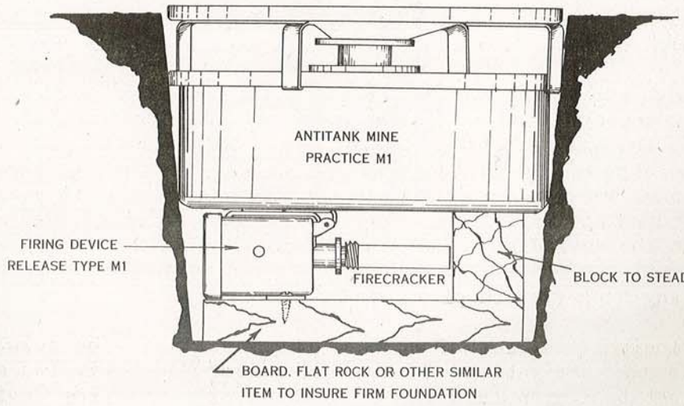


FIG. 3

FIRING DEVICE, RELEASE TYPE M1 EMPLOYED WITH THE ANTITANK MINE, PRACTICE M1

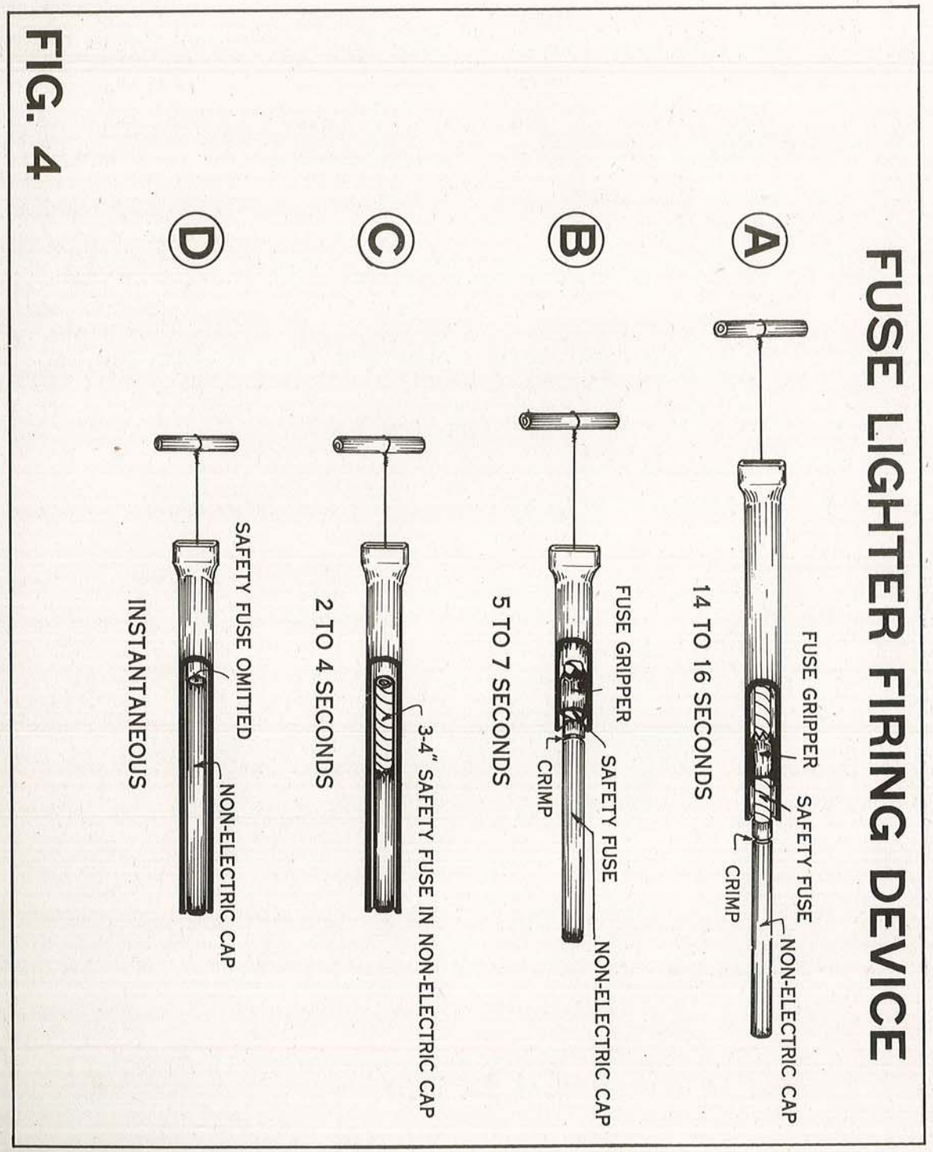


FIG. 4

instantaneous firing device (see fig. 4D). This is done by simply placing the open end of a blasting cap directly into a fuse lighter. Before doing this, the metal fuse gripper is removed from the fuse lighter by pushing a short length of safety fuse into the fuse lighter about one inch. Then the fuse is pulled out of the fuse lighter and this metal fuse gripper will come out with the fuse (see fig. 5). Now the open end of a non-electric blasting cap is placed in the fuse lighter and taped in place, making an instantaneous firing device. This particular method of employing the fuse lighter is not advisable in training.

As a safety precaution in assembling a booby trap in the training area, safety fuse will more than likely have to be employed. However, in many cases a length of fuse burning from 14 to 16 seconds would be unsatisfactory. This time interval, between the act by the victim and the subsequent explosion, may have to be cut down.

This can be done in one of two ways. First, the length of the fuse lighter can be cut down (see fig. 5). One way is to remove the fuse gripper and cut down the length of the fuse lighter to about two-fifths of its normal size. Then place the fuse gripper into the shortened end of the fuse lighter and the fuse into the new fuse lighter. Be sure to leave enough fuse to permit the crimping of a non-electric cap to it. This makes a firing device which will burn from five to seven seconds (see fig. 4B).

The other method of timing this type of firing device is to place

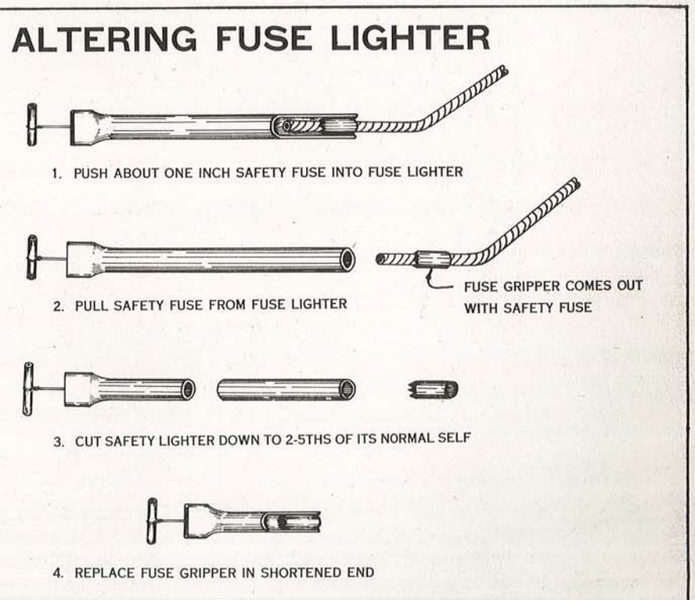


FIG. 5

three-fourths inch of safety fuse into the open end of an Army special blasting cap. This is just about enough fuse to fill the cap. After having removed the fuse gripper from a regulation fuse lighter in the manner previously described, take this fuse-filled cap and place it up into the fuse lighter as far as it will go. This firing device will explode the charge in from two to four seconds (see fig. 4C).

As far as firing devices are concerned, do not forget the oldest one of all. Tie a string or wire to the trigger of a gun and cause the gun to fire when someone opens a door, trips over a wire, or does one of a multitude of things which would fire the gun.

To lay or conceal a trip wire on the ground, and yet have the charge in a tree, the type illustrated in figure 6 can be used. This type would be handy in training, because it would get the charge out of range. In combat, the same principle could be employed, but in most instances the charge would only be elevated a few feet to insure more destructive results.

Where no explosives are available, a type of trap which would find its place in training troops to handle booby traps is the age-old "figure four" trap shown in figure 7. This type would be valuable in training because the nature of the device reduces the possibility of the victim's actually getting hurt.

ELECTRIC FIRING DEVICES

Electricity can be used to cause the victim to fire the charges in booby traps. For such a firing device, a battery or some other source of electric current, an electric blasting cap, and a switch are needed. After the trap has been put into place, the circuit between the battery and the electric blasting cap would be complete EXCEPT FOR THE BREAK CAUSED BY THE SWITCH. These switches are of cardinal importance in the study of electric firing devices.

They can run from the most simple to the most highly complex. All of them, however, operate on the same principle. A switch for an electric firing device is a means whereby some action on a tripping mechanism will bring two pieces of metal together.

In figure 8, a switch is shown which aptly illustrates the basic simplicity of this plan. Someone stepping on the device would cause the topmost board to be forced down on the lower one. This action would cause two wires, one of which is attached to each of the two boards, to come in contact, complete the circuit, and explode the cap.

After a moment's thought, one will realize that two wires can be brought in contact and a circuit completed by almost any natural or common act on the part of the victim. The linoleum in any room may be utilized to do the job when someone puts the slightest pressure on it. A door may be opened, a piece of equipment picked up, or a loose board may be tread on. Any of these acts may bring the two wires or pieces of metal together

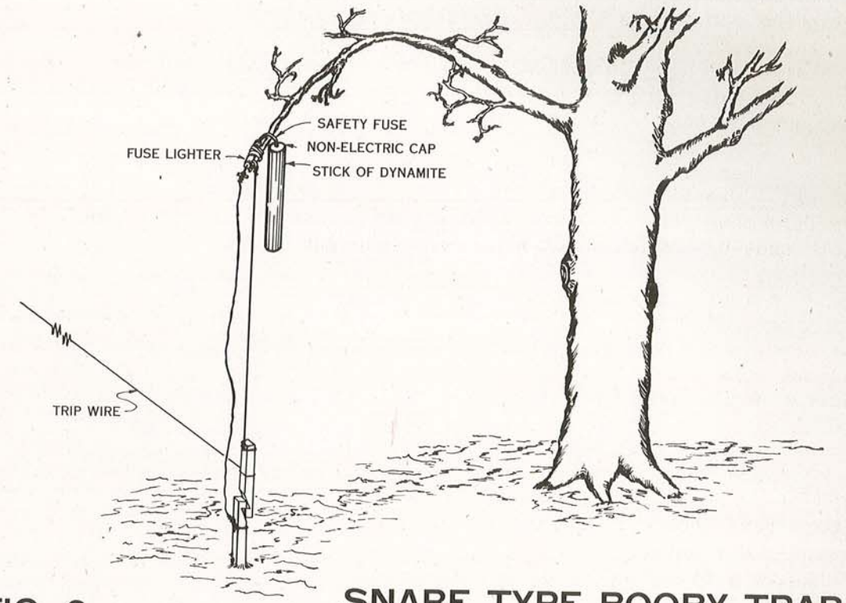


FIG. 6 SNARE TYPE BOOBY TRAP

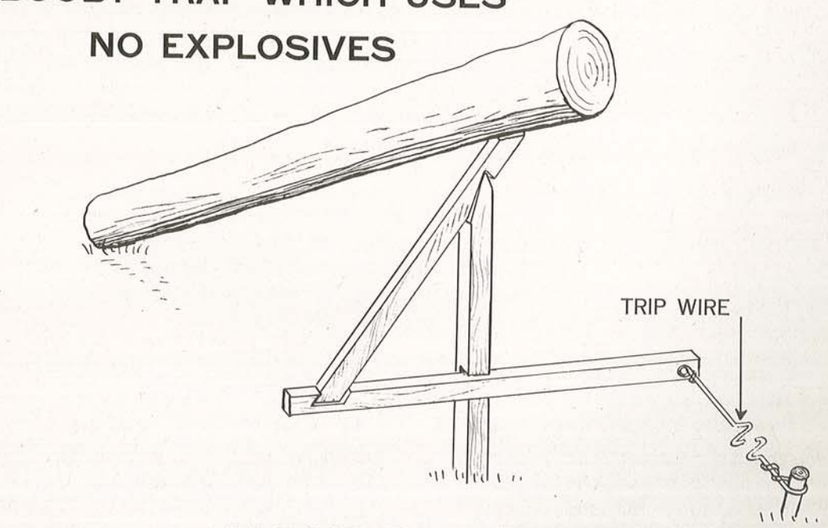


FIG. 7 FIGURE 4 TRAP

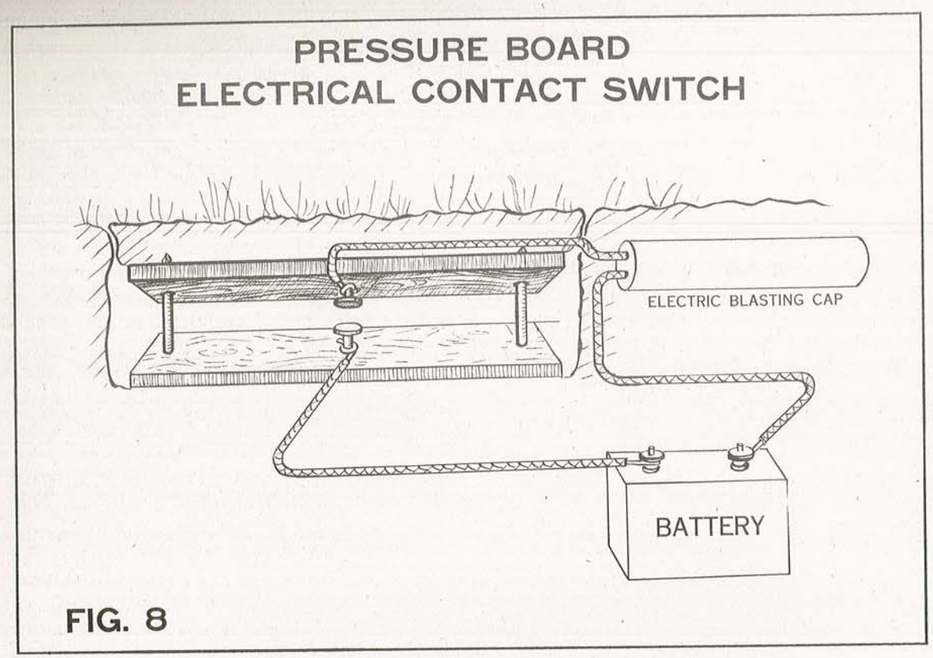


FIG. 8

and accomplish the desired end.

One method of bringing these wires together is that which has been dubbed "the fisherman's knot" (see fig. 9A). A loop is made in each of two pieces of wire. The two pieces are then set up in such a way that a pull on either length of wire would bring them into contact. The simplicity, ease of manufacture, and the use of readily accessible materials make this device useful both in training and in combat.

Another switch is the spring clothespin type (see fig. 9B). The clothespin is taped or tied to a stake, tree, or any other solid object. It is then wired to the battery and cap and the tripping mechanism put into place. In the sketch, note that two turns of uninsulated wire have been used to make connections in the jaws of the clothespin. Two screws, two nails, or two rivets will do the job equally well.

A mouse trap makes an effective pressure release type switch (see fig. 10). Some weight, such as a book, an antitank mine, a rifle, etc., will hold the arm of the trap down in the "cocked" position. One lead from the electric blasting cap runs directly to the battery, and the other lead from the cap runs to the arm on the trap. At the end of the wooden base where the arm of the trap would fall. a couple of turns of uninsulated wire are placed. This wire, by way of another lead, is connected to the second pole on the battery. When the book or other object is picked up from the top of the trap, the arm of the trap will fall on the end of the base where the wrappings of bared wire have been placed. The current will

run through the arm of the trap down through the bared wire wrapped around the base, completing the circuit and causing the electric blasting cap to explode.

It is not suggested that the trap be used in a manner similar to the way it was originally designed by the manufacturer. That is, by tying a trip wire to the "bait hook" and then having the bait hook hold the arm of the trap down (as it would be set to catch mice). This makes a device which is a bit too dangerous and sensitive for booby trap purposes.

Another switch employed many times with favorable results is illustrated in figure 11. Once again, note the basic simplicity of this device. It is just another means of getting the same job done, and is one more way of bringing the two separated wires or pieces of metal into electrical contact.

The standing wire type switch will also get results (see fig. 12). The switch consists of one wire laid out horizontally with an uninsulated loop at the end of it, and another wire, without insulation, which runs through the aforementioned loop in the horizontal wire. At the end of the vertical wire in the switch there is placed a loop to which is attached the trip wire. Someone tripping over the wire will force a contact in the switch and the circuit will be complete. Note that in the attached sketch, four trip wires have been employed, any one of which will close the circuit and fire the trap. This principle of using several trip wires

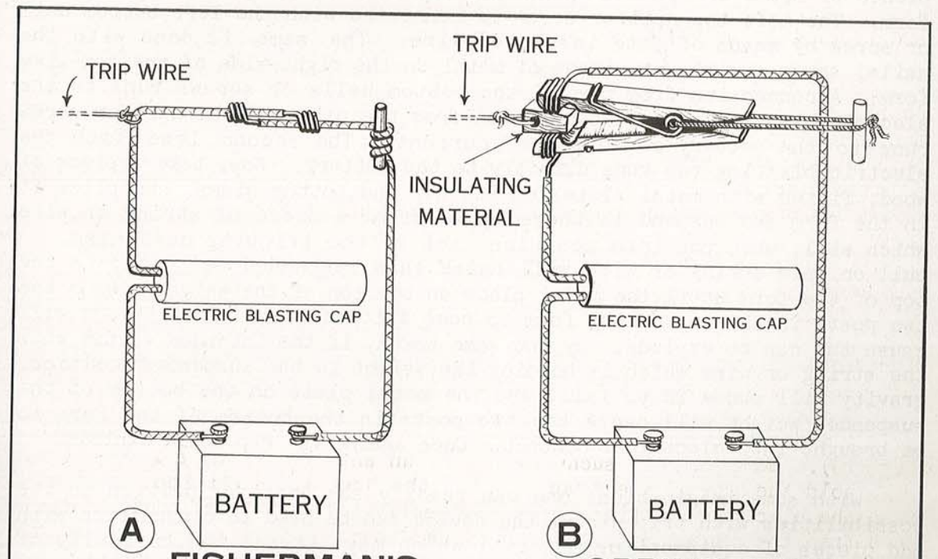


FIG. 9 FISHERMAN'S KNOT SWITCH

SPRING TYPE CLOTHES PIN SWITCH

to fire one trap could be adopted with many of the firing devices discussed here. The use of trip mechanisms in excess of the required one increases the possibility of the intended victim's exploding the charge.

A kitchen knife can make a firing device which will operate in two ways (see fig. 13). One lead from the source of current runs to the handle of the knife blade, assuming, of course, that the knife is equipped with a metal handle. Two nails or screws, which are connected with a piece of wire, are driven into a board, and the knife is mounted on the board so that the end of the blade is on line with one of these two nails. A wire lead runs from either one of the nails to the electric blasting cap, and the two nails are also connected with a piece of wire, advisedly laid in a groove cut between the two. A small hole or groove is cut into the end of the knife blade to which is tied the trip wire. When the trip wire is held taut, it holds the knife blade away from the nail or post with which it has previously been alined. Any additional pull enacted by the victim when he trips over the wire will further bend the knife blade and bring it into contact with one of the nails or posts. If, on the other hand, the victim discovers the wire and cuts it before investigating the firing device employed as he should have done, the knife blade will spring back into its normal position and make contact with the other nail or pole. In this case, the trap would be sprung if the trip wire were pulled, or if the tension on the trip wire were released.

Another device of this same principle is the suspended weight type of switch (see fig. 14). A form is built and stood on end, similar to the one depicted in the sketch. Then two screws, pieces of wire, nails, or pieces of metal are placed inside the top and the bottom of the box-like form. The left top nail or screw is connected with the left bottom nail or screw by means of some insulated wire. The same is done with the nails, screws, wire, or pieces of metal on the right side of the box-like form. A connection from one of the bottom nails or screws runs to the electric blasting cap. A connection from the other bottom nail or screw runs to the battery or source of current. The second lead from the electric blasting cap runs directly to the battery. Now, take a piece of wood, fitted with metal plates on its top and bottom sides, and place it in the form and suspend it there by means of a piece of string or wire which will, when put into position. act as the tripping mechanism. A pull on this string or wire will raise this suspended weight up to the top of the form until the metal plate on the top of the weight causes the two posts in the top of the form to come into contact. This action will cause the cap to explode. By the same token, if the intended victim cuts the string or wire which is holding the weight in the suspended position, gravity will cause it to fall, and the metal plate on the bottom of the suspended weight will cause the two posts in the bottom of the form to be brought into electrical contact. Once again, the cap would explode.

With some imagination, one can readily see that in addition to its possibilities with trip wires, the device can be used in conjunction with odd pieces of equipment or material which may attract the curiosity of the intended victim. The string, which holds the suspended weight, may be attached to a canteen or rifle and make a booby trap which will teach the trainee an invaluable lesson.

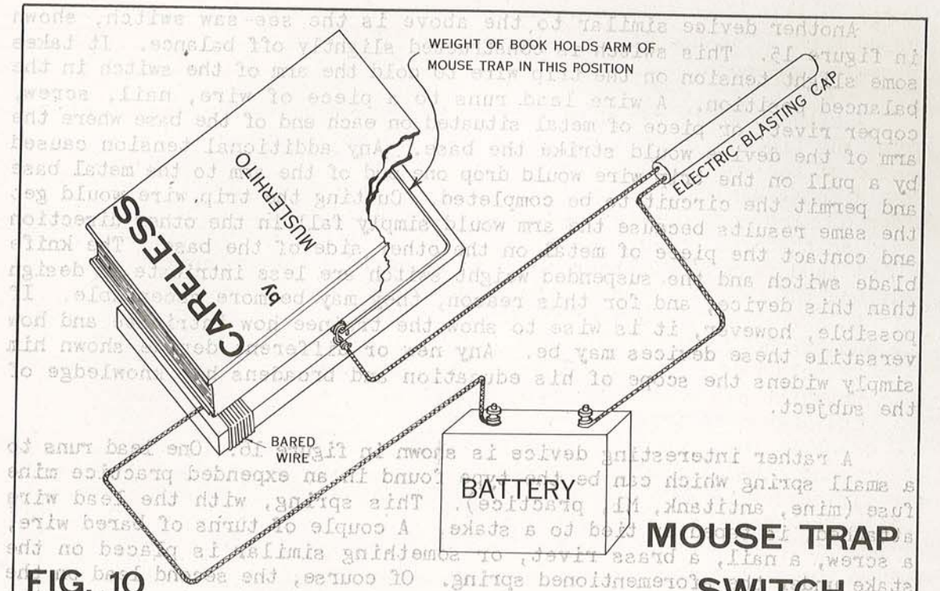


FIG. 10 MOUSE TRAP SWITCH

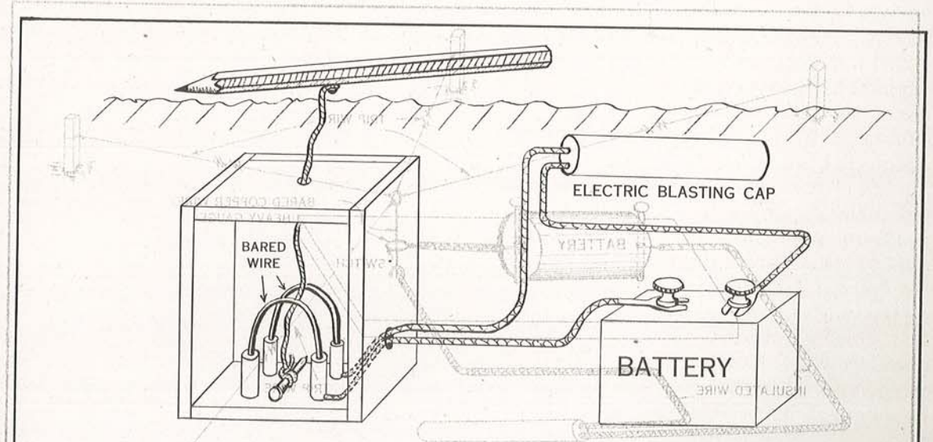


FIG. 11 ARCHED WIRE SWITCH

Another device similar to the above is the see-saw switch, shown in figure 15. This switch is constructed slightly off balance. It takes some slight tension on the trip wire to hold the arm of the switch in the balanced position. A wire lead runs to a piece of wire, nail, screw, copper rivet, or piece of metal situated on each end of the base where the arm of the device would strike the base. Any additional tension caused by a pull on the trip wire would drop one end of the arm to the metal base and permit the circuit to be completed. Cutting the trip wire would get the same results because the arm would simply fall in the other direction and contact the piece of metal on the other side of the base. The knife blade switch and the suspended weight switch are less intricate in design than this device, and for this reason, they may be more acceptable. If possible, however, it is wise to show the trainee how intricate and how versatile these devices may be. Any new or different device shown him simply widens the scope of his education and broadens his knowledge of the subject.

A rather interesting device is shown in figure 16. One lead runs to a small spring which can be the type found in an expended practice mine fuse (mine, antitank, M1, practice). This spring, with the lead wire attached, is taped or tied to a stake. A couple of turns of bared wire, a screw, a nail, a brass rivet, or something similar is placed on the stake under the aforementioned spring. Of course, the second lead on the switch runs from the rivet, nail, etc. The trip wire is tied to the spring and the tension on the trip wire holds the end of the spring away from the connection on the stake. Instead of the usual strand of small

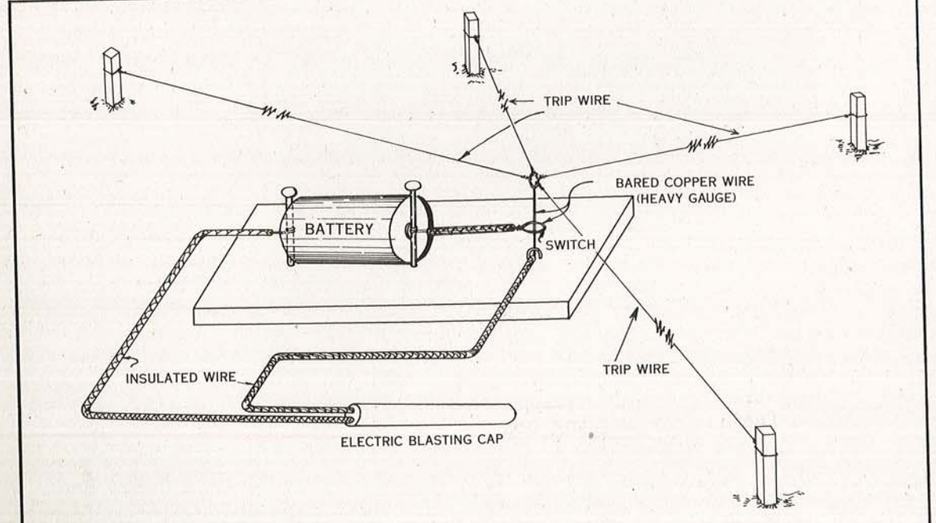


FIG. 12 STANDING WIRE SWITCH

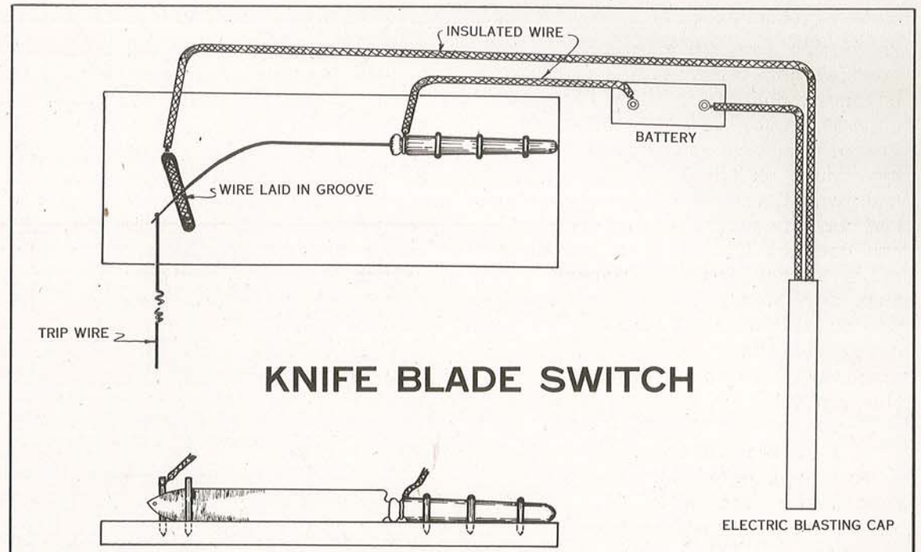


FIG. 13

gauge wire, a length of thread is substituted for the conventional type of trip wire. If the victim trips on this thread, the thread would immediately break and the end of the spring would make contact with the contact point on the stake. Once again, if the victim discovers the thread, which, incidentally, he is unlikely to do because of its ease of camouflage, he may spring the trap by cutting it.

SOURCE OF CURRENT

All of these electrical firing devices must have some source of electrical energy to make them operate. Of course, the regular current in a house or factory can be utilized, but for the most part, dry cell batteries will be relied on to explode electric blasting caps.

If available, the Signal Corps Battery BA 31 makes an excellent tool for these purposes because it is strong enough to warrant repeated use on innumerable traps, and is equipped with a positive and negative screw type pole which facilitates making connections.

However, the small one-cell flashlight battery (Signal Corps Battery BA 30) will explode many Army electric blasting caps before its effective life is over. It has been found to be quite acceptable for such purposes. In training, when considerable lead wire is used to get our charges off to a safe distance, two of these batteries connected in series may have to be used to insure detonation when we plan to use them over and over

again. Because of the nature of these batteries, some means of making connections to them must be devised. The two screw type poles on the Signal Corps Battery BA 31 are not available in this case. An expedient method of keeping the battery in contact with the wires must be adopted.

The use of two nails with some wrappings of bared wire around them, and driven into a board spaced in such a way that the battery will fit between the two nails, with the pole at the top and the pole at the bottom of the battery making contact with the wrapping of bared wire, is illustrated in figure 12. Of course, the battery can be fastened securely to the board by means of tape or a few additional nails driven into the board at intervals around the battery. The nails can be driven after the electrical contacts have been successfully improvised.

If the time is available, the leads should be soldered to the poles of the battery to enhance their efficiency (see fig. 17A). For further connection to the firing device switch and cap, it is advisable to solder two batteries in series and solder two wire connections to the assembly. The two batteries are placed in a can, the leads are run out of a hole in the can, the batteries are surrounded with dry sawdust, and the can is sealed completely with a cardboard cover and sealing wax (see fig. 17B). This will supply a source of current which will resist the action of the weather and can be used many times.

Possibly the most simple method of making improvised connections to the common flashlight battery is by taping the lead wires in their positions on the poles of the batteries (see fig. 17C). Although this method will operate satisfactorily under most conditions, it is advisable to solder the posts and seal them in a moist-proof container as described above. When the batteries are encased in this manner, there is provided assurance against the possible ill effects of bad weather and rough handling.

It is deemed advisable that all of these electric switches be tested with a galvanometer before attempting to incorporate the switches as an integral part of a booby trap. The galvanometer may be found in any Army demolition set. This is done by touching and holding together the two leads from the switch to the two poles on the galvanometer. If the switch is in proper working order, there should be no reading on the galvanometer when the switch is open or cocked. While the two leads from the switch are still in contact with the two poles on the galvanometer, trip or close the switch. The needle on the galvanometer should immediately move across the face of the galvanometer. If the switch gives the proper reaction, it is in good working order and, when put into operation, should react favorably in a booby trap. If the switch does not react as it should in this test, repair it and retest it.

If, in the process of laying a booby trap into position, it is deemed necessary to test the work still further, substitute a small flashlight bulb for the explosive charge. Everything else--the tripping mechanism, the switch, and the battery of the firing device--would take their normal places in the booby trap. Now, when the trap is sprung, if everything is in order the flashlight bulb should light up. If this test is successfully

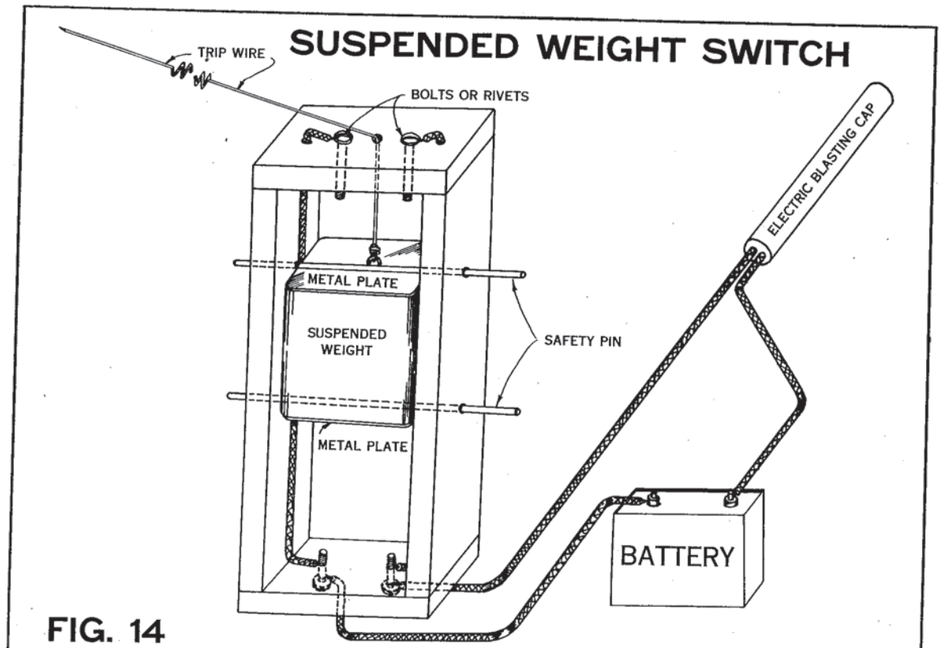
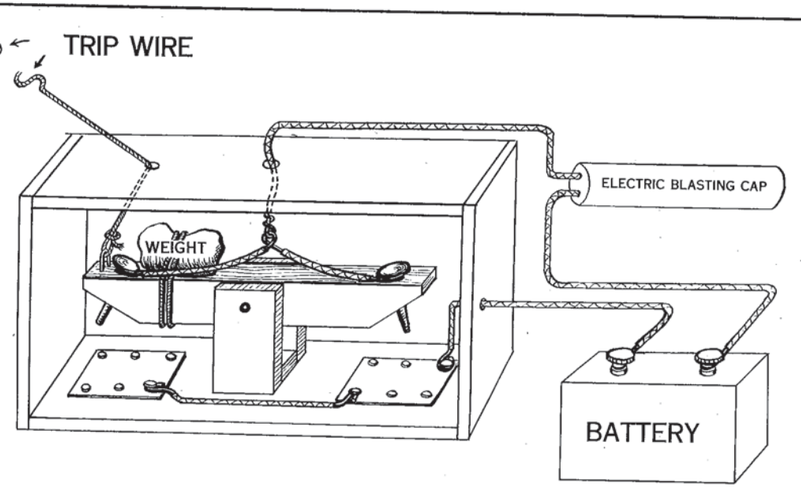


FIG. 14



SEE-SAW SWITCH

FIG. 15

executed, remove the battery, recock the switch, exchange the flashlight bulb for the explosive charge, and put the battery back into position. Note that the battery was the last to be placed into position. These electric firing devices do not become dangerous until the battery is wired into the trap. The source of current in all cases when electrical firing devices are employed, will be installed at a safe distance and will be the last item to be put into position.

EXPLOSIVE CHARGES

Tripping mechanisms and firing devices for booby traps have been described in previous pages. The means of employing explosive charges in training will be discussed now. A maximum effect with a minimum of danger both to the troops laying the booby traps in place and to the "victims" who may eventually blunder into our traps must be attained in our training program. Without any harmful results to his person, the soldier must be made to know that he made a mistake, and must be made to realize the potential possibilities of his mistake if he were in combat.

There are several means at our disposal whereby the trap can be realistically exploded and still have the "victim" go back to his quarters under his own power, a wiser and a more seasoned soldier. This has been discussed briefly under non-electric government issue firing devices. One method of getting these results is described in the following paragraph.

First of all, using an electric firing device, the tripping mechanism and firing device switch are placed at a safe distance from our electric cap and explosive charge. Between one-half pound and two pounds of high explosive is placed between twenty and two hundred feet, depending on the size of the charge, from where any troops will be permitted to walk.

It is suggested that this charge be suspended a few feet from the ground from the limbs of a bush or small tree. If the explosive is placed on the ground, it is possible for the explosive force to throw large stones for a considerable distance. If the charge is hung in the air from the limb of a tree, not only will this possibility be eliminated, but a much more resounding effect from the consequent explosion will be attained.

Using either an electric or non-electric firing device, a "lampblack can" may be employed with considerable effect (see fig. 18). When the charge explodes, the lampblack will leave the can in a dense cloud, marking anyone who may be in range. This is made up from a No. 2 can or an evaporated milk can by simply punching a hole in the side near the bottom of the can. Then a blasting cap, electric or non-electric, after it has been liberally covered with friction tape, is placed into this hole. Now, a couple of layers of corrugated cardboard, cut to size, are placed over the blasting cap, and the can is finally filled with lampblack. Flour, lime, or cement may be substituted for the lampblack or mixed with it, but the tendency for all three of these to absorb moisture reduces the cloud effect somewhat.

All of us, since we must have a basic knowledge of explosives before

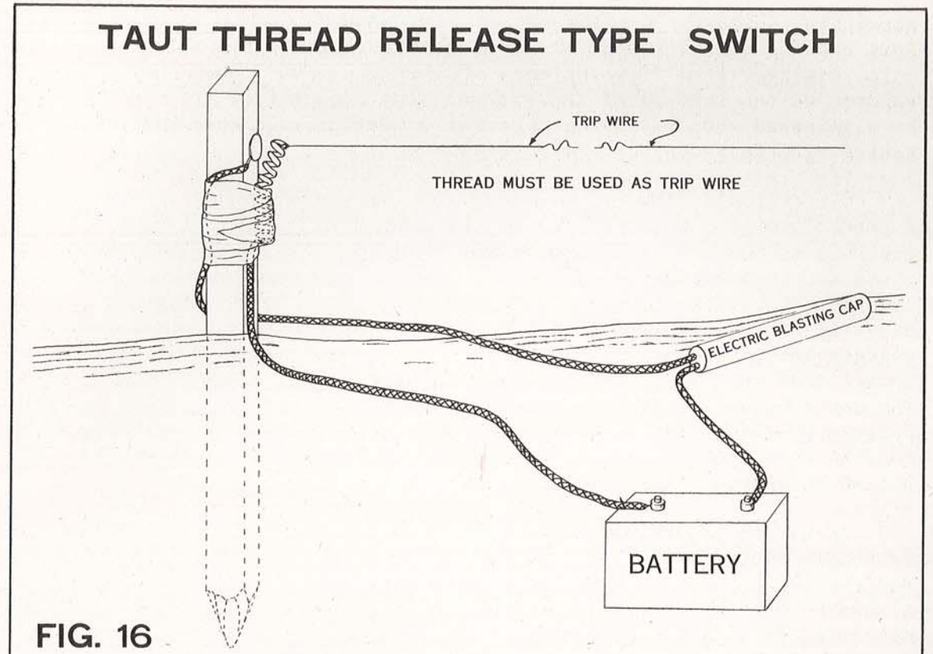


FIG. 16

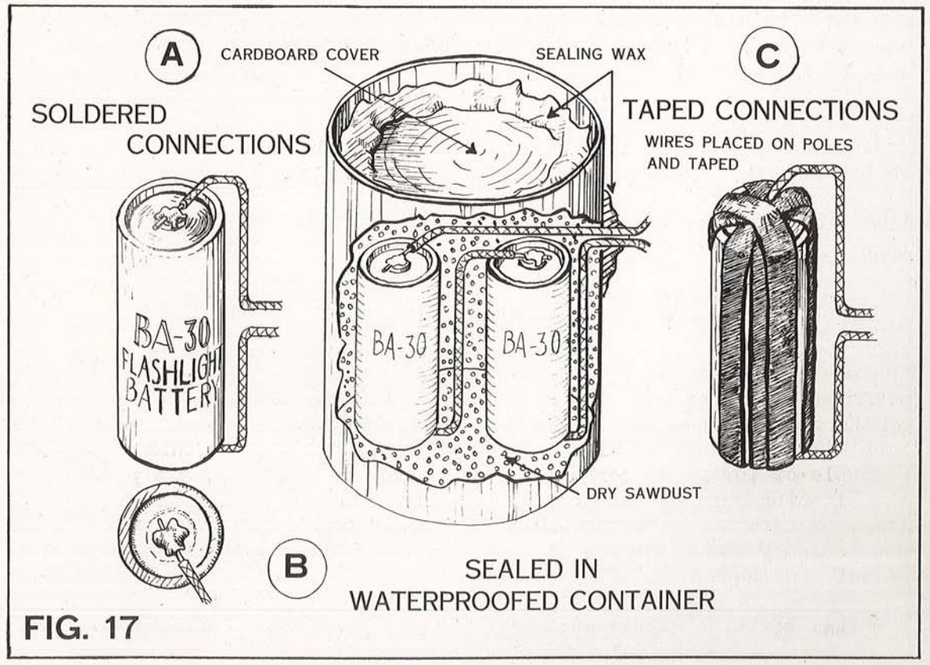


FIG. 17

attempting to master the subject of booby traps, realize that one of the Army special blasting caps would completely shatter the can and present quite a danger from flying pieces of tin and copper if we simply left it exposed on the surface of the ground. Any danger from this quarter can be eliminated when employing this type of explosive charge in training by taking certain necessary precautions.

First of all, the can is buried just below the surface of the ground. A stake is driven into the ground alongside the can and is taped or tied securely to the can. If it is more convenient, the can is attached to the stake before burying. At any rate, it has been found necessary to take this precaution to preclude the possibility of anyone kicking the can out of place or tampering with it with no knowledge of the possible harmful effects to his person. Next, the cap is attached firmly to the can. One should make especially certain of taking this step if a non-electric blasting cap and a regulation fuse lighter are employed. It must be in place firmly enough to prevent a tug on the tripping mechanism from simply pulling the fuse lighter and cap out of the can and into the open where they are in danger of doing someone serious harm.

If the above mentioned precautions are taken, there is no fear of hurting anyone, even if someone is actually standing directly over the can when the charge goes off. However, the explosion will create a dense cloud of black smoke which will make anyone within its range literally a marked man. If all of these precautions are taken, and if no one is to be within one yard of the charge when it explodes, then the blasting cap can be

LAMPBLACK BOOBY TRAP

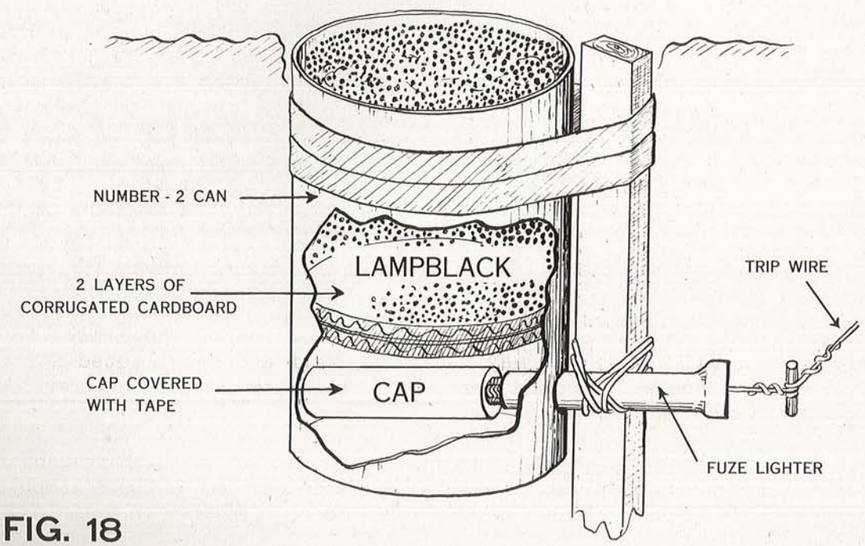


FIG. 18

LAMPBLACK BOOBY TRAP

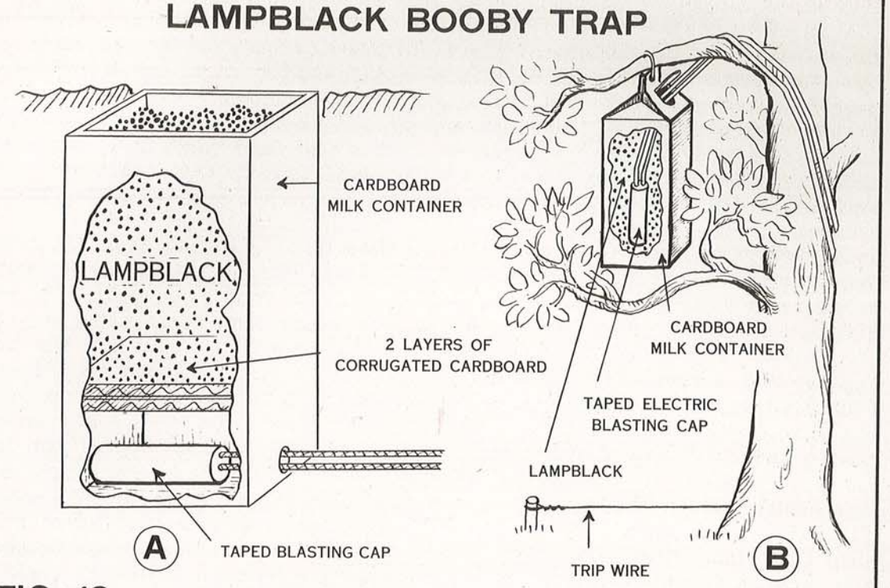


FIG. 19

supplemented with a twelfth of a pound of nitrostarch or its equivalent in dynamite.

By the use of an electric firing device or a non-electric firing device similar to that shown in figure 6, the lampblack cloud can be utilized in still another even more effective manner (see fig. 19A).

Fill a used one-quart cardboard milk container with lampblack and, after thoroughly taping an electric blasting cap, place the cap into the center of the container. Use some string or tape to make sure that the cap will not be pulled out of position. Then place and camouflage the container in the branches of a tree, about eight to ten feet from the ground. Run the leads down to the firing device and tripping mechanism on the ground or wherever you have found it expedient to place them. This trick has been proved safe and effective. A large paper bag may be substituted for the milk container, but some degree of safety would be sacrificed and additional precautions in safeguarding our troops would have to be taken. This milk container may be cut in half and substituted for the No. 2 can, although the results are not quite as sensational as previously mentioned (see fig. 19B).

In some cases. it may be possible to use two of these charges on one trap. A large charge of explosive at a distance and one of these lampblack charges close to the victim has been found to be effective in training.

Do not forget the possibility of firecrackers being used as the

explosive charge in training. They may be used in conjunction with any of the standard firing devices or with an ordinary fuse lighter. Take the fuse from the firecracker and place it directly into the fuse lighter, or use regulation safety fuse and a fuse lighter in any of the ways previously described under expedient non-electric firing devices. Simply make a hole in the firecracker and place the end of the fuse into this hole and tape or tie the entire assembly together. When the fuse burns out, the flame which is spit out of the end of the fuse will explode the firecracker just as it will explode the non-electric blasting cap in the previous instances.

Some excellent results can be attained with the fuse from the mine, antitank, M1, practice. First of all, by applying a strong steady pull, remove the striker assembly from the body of the fuse, and replace it with a wooden doughnut or washer which has previously been fashioned (see fig. 20). Now, after removing the base from either the pressure or the pull type firing device, fit the end of the device snugly into the hole in the doughnut or wooden washer. When the necessary pull or pressure, whichever the case may be, has been applied to the device. the firing pin in the device will be driven forward until it hits the cap in the body of the fuse and will explode it. This, in turn, will explode the charge of black powder and the smoke-puff charge in the body of the fuse. While this device is quite spectacular and presents little danger to personnel if used properly, it does present somewhat of a fire hazard. This warrants a thorough and constant check for fire during the time the devices are being exploded by our "victims." They should not be employed inside of buildings except, in rare instances, when the situation may warrant their use.

LAYING, DETECTING, AND REMOVING BOOBY TRAPS IN COMBAT

In laying booby traps in combat, a somewhat different problem from the one overcome in training is encountered. Here, the traps must kill whoever blunders into the tripping mechanism. In other words, the traps must cause as many casualties as possible.

The Corps of Engineers has adopted two antipersonnel mines which could be used to construct booby traps in combat. One of these is the mine, antipersonnel, M2, which utilizes a non-electric firing device and a propellent charge of black powder in the mine to throw a shell into the air. This shell will explode at a height of from three to four feet from the ground, and shrapnel will be thrown over a wide radius. The other is the mine, anitpersonnel, M3. It consists of an explosive-filled cast iron case. serrated horizontally and vertically, similar to the fragmentation hand grenade. It is constructed in the following dimensions: 5 3/8", by 3½", by 3½". It weighs eleven and one-half pounds and is filled with one-half pound of flaked TNT. This mine has to be primed or capped with the Army special blasting cap in any one, two, or all of three cavities provided in the mine for this purpose. These holes are small cavities and are so threaded that any of the standard firing devices previously described may be screwed into the mine after the Army non-electric blasting cap has been crimped to the end of the base of the firing device. The cross grooves in the mine provide for an effective torrent of shell fragments to be showered over a wide area.

USE OF ANTITANK MINE PRACTICE FUSE AS BOOBY TRAP CHARGE

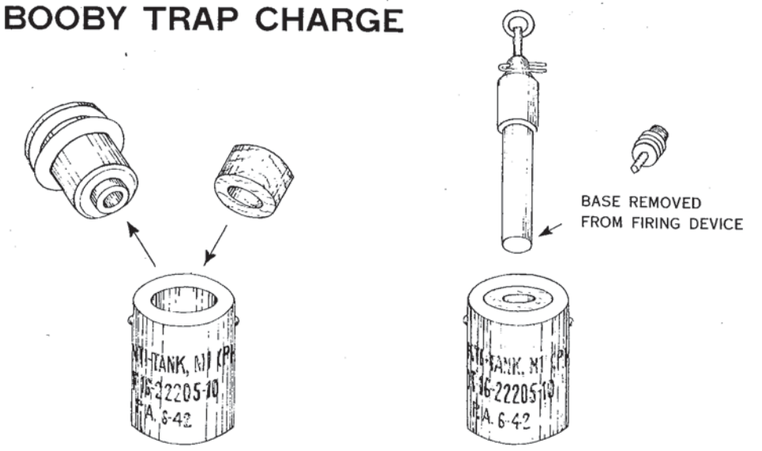


FIG. 20

The ordinary fragmentation hand grenade, MK II, may be used as an explosive charge in combat. A trip wire must be tied to the safety pin in the grenade. A pull on the trip wire will extract the safety pin and the grenade will explode in five and one-half seconds (see fig. 21A). There is one more way of employing this grenade. This is to place the "arm" of the grenade in the ground in such a manner that the weight of the grenade and the hold of the earth around the arm of the grenade will prevent it from firing even after the safety pin has been removed. Lay it down in this condition, remove the safety pin, and leave it in place for the enemy to pick up (see fig. 21B). In both of the above instances, there is a five and one-half second delay to possibly detract from the effectiveness of the booby trap.

The bases of the standard government issue firing devices are constructed in such a way that any one of the three types of firing devices can be used to help fire the fragmentation hand grenade when this grenade is used as the explosive charge in a booby trap. The entire fuse assembly is unscrewed from the grenade without removing the safety pin. The fiber washer from the grenade is placed under the flange in the firing device base. Now, a non-electric blasting cap is crimped to the end of the base and this assembly is screwed into the grenade. Finally, the firing device base is screwed into any one of the three types of firing devices (see fig. 21C). This method of having a blasting cap explode the grenade can be applied using any of the expedient electric or non-electric firing devices (see fig. 21D).

The standard firing devices will be used in combat in a manner similar to the methods used in training. However, the problem of making traps effective but not harmful to our victim will no longer exist. Attempt to do a thorough job on the enemy. Crimp a non-electric blasting cap to the open end of the base of the firing device and place the cap into a charge of high explosive as large as the situation demands or our supply of high explosive permits.

In looking over the foregoing remarks on the subject of laying booby traps in combat, note that the tripping mechanisms and firing devices have remained the same, for the most part, as the types discussed under booby traps for training purposes. This is generally true with all of the tripping mechanisms, and most of the firing devices can easily find their place in the booby trap laid in combat. The explosive charge, however, will have to be quite different and must undergo a radical change in its makeup.

In the first place, the tripping mechanism, the firing device, and the explosive charge will all be, in most instances, in close proximity to each other. In order to kill the man who happens on the tripping mechanism, the explosive charge will have to be within his range. The traps must be set so they will draw as many fatalities in the enemy's forces as possible.

Make the charge large enough or strong enough to get the desired effect. Attempt to destroy the morale of those of the enemy who hear about the "unfortunate accident." Do not leave something behind which will cause him to laugh at your amateurish attempts to destroy him. A discovered and neutralized booby trap is a decided morale builder rather than a morale "buster."

If the standard antipersonnel mines are available, use them; but booby traps, for the most part, will be made up from any available supply of high explosive. If this explosive is available in large quantities for these purposes. by all means use as much as is deemed necessary in the booby traps left behind.

In many cases, only a limited supply will be available to lay down booby traps in a given area. In these cases, be careful not to make the traps so weak that they are pathetic in their impotency. A powerful booby trap against personnel can be constructed by using a small charge of explosive if the available supply is properly used.

Note that the mine, antipersonnel, M3, weighs eleven and one-half pounds, but it contains only one-half pound of high explosive. This leaves eleven pounds of cast iron case which is depended on to cause the casualties. One should utilize this same principle when making up charges for the traps to be laid down. Nails or scrap metal should be placed around the charge so that the fragmentation of the metal will do the work (see fig. 22).

Despite the decided saving in explosive achieved when our available supply is used in conjunction with any scrap metal or nails on hand, this method, in many instances, will not be used because of the nature of the

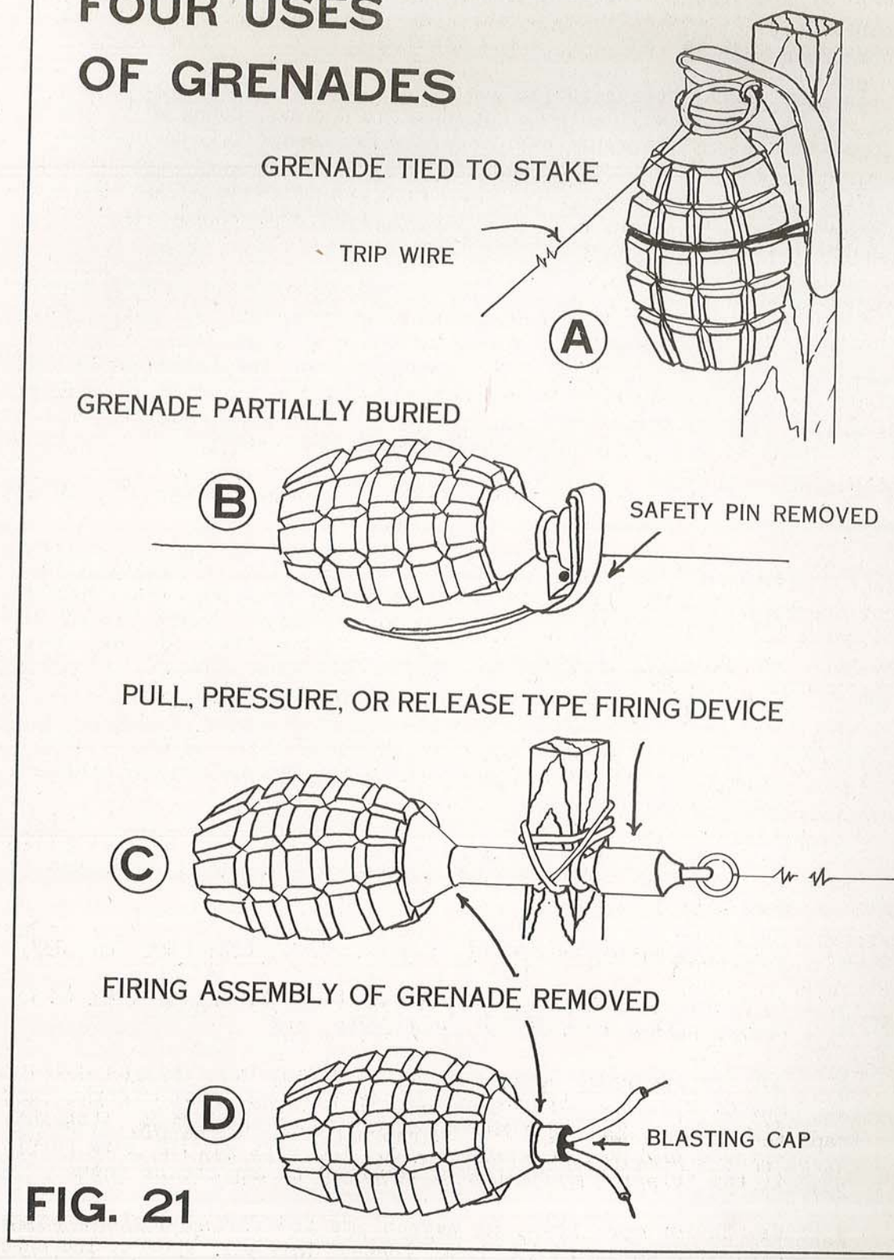


FIG. 21

mission of many booby traps. Sometimes the trap must, when it is fired, destroy an entire installation or building. Consequently, a large charge of explosive must be used for such a mission.

In many cases, because of an additional effect on the spirit of the enemy and because it will help to cut down his numbers, booby traps can be employed to destroy favorable buildings, wells, sewage systems, entrenchments, etc., rather than have them destroyed before any territory is evacuated. In these cases, heavy charges of explosive must be used and fragmentation of scrap metal or shrapnel would not be necessary to destroy any enemy soldiers in the immediate vicinity.

In any event, whenever a booby trap of any type is laid, a full report must be made to the authority who ordered the laying of the trap. This report will give the location, type of mechanism employed, date trap laid, identification of the unit who laid the trap, and any other pertinent information which would be vital to any United Nations troops in removal of the trap if they recaptured the territory wherein the trap was laid. This information will be handled as confidential material.

Both in training and in combat, there are certain principles which must be followed in laying booby traps.

1. First of all, remember all of the principles of camouflage picked up in past schooling and experience. Preserve the normal outward appearances of the locality of the booby trap. Remove any of the explosive wrappings, spoil, sawdust, safety pins, or any tools used to install the trap. Leave the place looking, as nearly as possible, the same as you found it.

2. Appeal to the enemy's curiosity by leaving behind an old rifle, canteen, harmonica, or anything else the souvenir hunter may find of interest (see fig. 23C).

3. Inconvenience the enemy in some way. Lay a booby trap in a pile of rubbish or an abandoned vehicle which he will be forced to remove (see fig. 23D).

4. Tempt him with food, money, liquor, candy, etc. (see fig. 23B).

5. Force him to walk into your booby traps by laying them across narrow paths, in defiles, in dugouts, etc.

6. Let any every-day operation, which he may have carried out any day of his life without mishap, be his one fatal mistake (see fig. 23A). Opening windows, switching on the lights, straightening a picture, or moving a chair may well get the same result if the tripping mechanism is attached to any one of them.

7. Use two or more tripping mechanisms and firing devices on one explosive charge in some booby traps. This will greatly increase the possibility of the trap being sprung. Sometimes the victim will neutralize one of the tripping mechanisms and firing devices

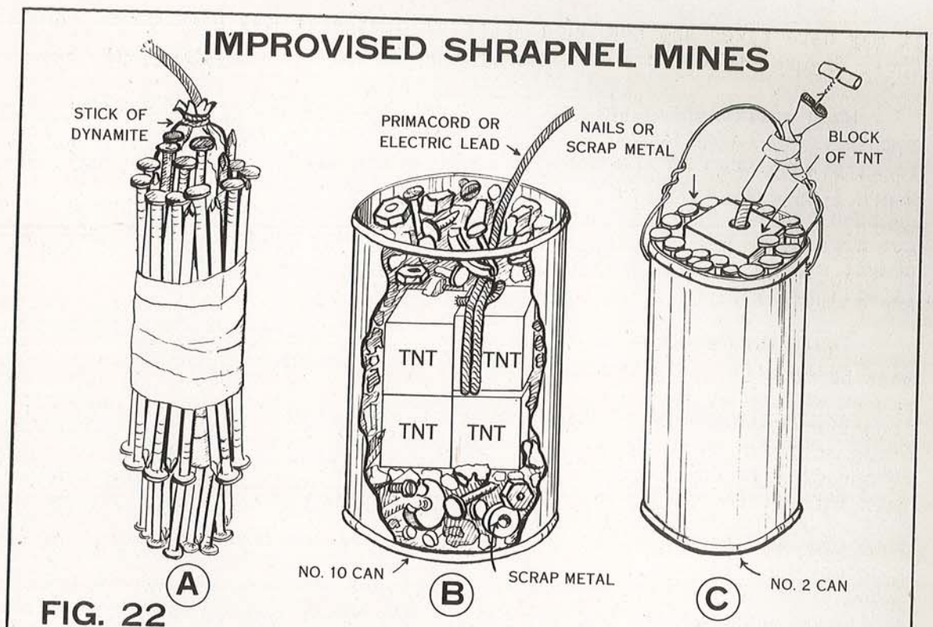


FIG. 22

and be thrown off his guard. He may, then, inadvertently explode the charge after he thinks the trap has been completely neutralized. This type of deception will help further to harass and complete the bewilderment of the enemy.

8. Attract enemy personnel to the vicinity of the booby trap by having a fire break out after you have left the locality.

9. Attract the enemy to the site of a well concealed trap by means of one poorly concealed. He may be thrown off his guard by your apparently amateurish attempts to conceal the obvious booby trap.

10. Lay down some "dummies" to keep him "rattled" or possibly throw him off guard.

While all arms or services may not lay booby traps, all troops will certainly have to keep constantly on the alert for enemy booby traps, and many of these troops will have the job of removing them. While it will not be entirely possible to eliminate casualties from this most versatile of weapons, these casualties can be cut down to a minimum if a thorough and well planned program of training is properly applied.

At any rate, the poor effect this weapon may have on our morale can be reduced to a minimum if a goodly portion of these traps is discovered. Every time you safely eliminate one of them, you can count how many lives

it may have taken and how much material damage it may have done. Post these figures to our credit, and keep on hunting--but cautiously!

When sufficiently trained troops are not available to neutralize and remove enemy booby traps, or when time is short, it will become necessary to eliminate them in another way. The booby traps may be destroyed in place from a safe distance. Tie a rope to anything suspicious, such as a canteen, chair, door, or anything suspected of being "wired for trouble," get back to a safe spot at the end of the rope, and pull the suspicious object out of place. If there is a trap attached to the object, of course it will explode.

Toss grenades or charges of explosive into suspicious houses, trenches, pill boxes, etc., and destroy some of the traps in this manner.

A grappling hook or an expedient grappling hook, made by hammering nails into all sides of a piece of wood about a foot long, may be used to remove trip wires from an area suspected of having some traps in it (see fig. 24). This grappling hook would be tied to approximately one hundred feet of rope. In using this device, throw the hook out as far as possible into the suspected field. Immediately, before the length of rope has had a chance to settle, get into the prone position, in a protected or defiladed area, if possible. After the rope has settled, get up and tie an additional one hundred feet of rope to the end of the first hundred feet. Then, of course, go to the end of the second length, two hundred feet away from the grappling hook itself, get down into a prone position behind some cover, if possible, and start to pull in the grappling hook. Drag it along for about one hundred feet and then repeat the entire operation at least twice in as nearly the same spot as possible.

Even after following these instructions faithfully, do not declare the area clear of booby traps. Continue your search because the grappling hook may have harmlessly passed over some of the enemy's trip wires. At any rate, you will have to give the area a thorough going over for any pressure or release type devices the enemy may have used with his traps.

SOME NOTES ON DETECTION AND REMOVAL OF BOOBY TRAPS

One man should lay or remove any one booby trap.

Keep the number of a removal party down to a minimum when moving in to make an area safe.

Detection of booby traps is a duty of all arms. If practicable, removal of booby traps is a duty of Engineer troops or specially trained troops of other branches.

Remember that almost anything conceivable may be utilized by the enemy as a bait for his booby traps.

Because you would not or could not lay a trap in a certain position, do not assume that the enemy would not or could not.

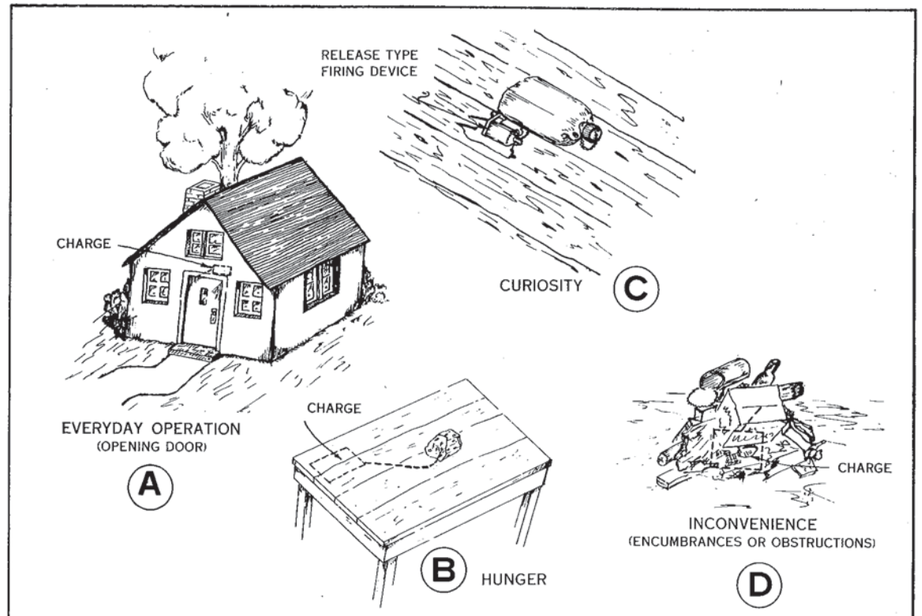


FIG. 23 SOME BOOBY TRAP PRINCIPLES

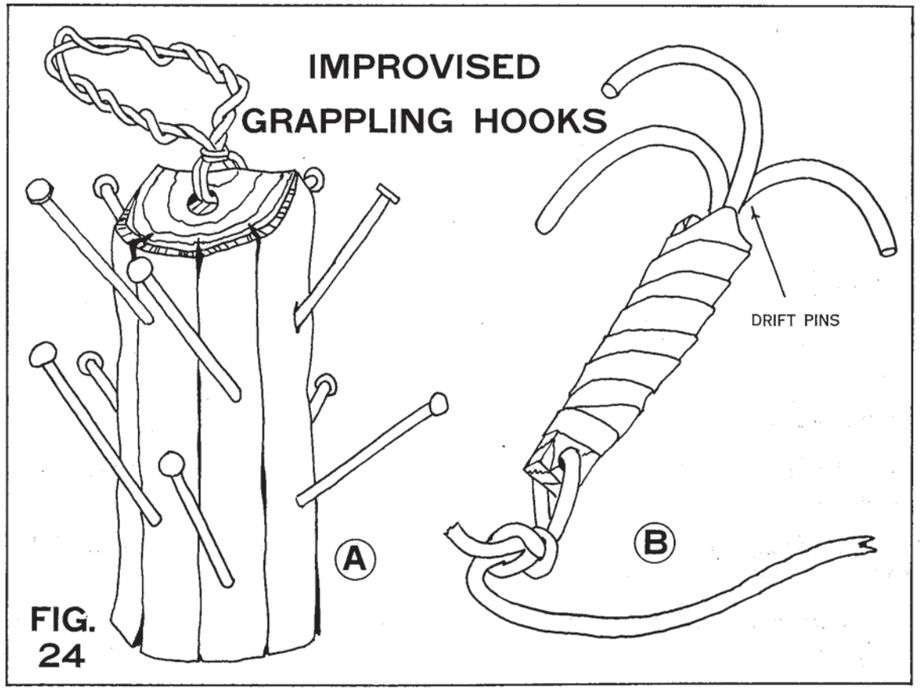


FIG. 24

Do not be a souvenir hunter or collector in an area which the enemy has recently vacated.

Do not underestimate your enemy.

Inexperienced troops must stay away from suspected areas until these places have been made safe by searching and removal parties.

When you have located a booby trap, make a report to higher headquarters. If possible, state type and method of employment.

Beware of fires that may possibly have been started by the enemy leaving behind a delayed action incendiary bomb. He may lure you into a trap while thrown off your guard by the outburst of the fire.

The enemy will try to inconvenience you by laying an obstruction or incumbrance in a trench, road, dugout, building, etc., and using it as bait for his traps.

Never pull any wires.

Never cut any taut wires.

In removing a booby trap, never do anything until you are reasonably sure exactly what that act will accomplish.

Never saturate an electrically activated booby trap with water in attempting to neutralize it. You may short the circuit and explode the charge in the trap.

Beware of shorting a circuit in your work. Cutting two wires simultaneously, contacting two pieces of bare wire, etc.

Beware of traps with two or more different tripping mechanisms or firing devices attached to them.

Beware of new boards in buildings, floors, duck boards, etc.

Beware of any unnatural phenomena, such as pegs, nails, wire, etc., which seem to serve no purpose.

Look for deteriorated camouflage attempts.

Beware of traps outside of buildings, under ground floor windows, or doors, etc.

Examine inside of doors from ground floor window before attempting to enter houses.

Buildings which would serve as headquarters should be especially examined thoroughly before being put into use.

Beware of disturbed ground, or hollows, or mounds on the surface of

the ground.

Look for spoil, explosive wrappings, sawdust, caps, or some indication of the enemy's work which inadvertently may have been left behind.

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